

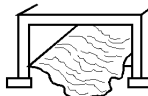
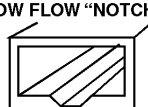
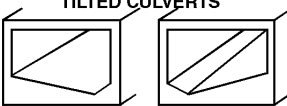

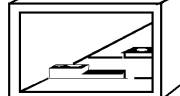
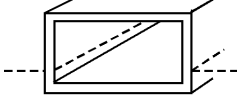
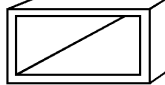


FUNCTIONAL LOW FLOW FISH PASSAGE CHART FOR STREAM CROSSINGS				FIGURE 10 - H	
				BDC97MR006	
CONFIGURATION	TROUT PRODUCTION	TROUT MAINTENANCE	NON-TROUT - WARMWATER / COOLWATER		
			GAMEFISH	ANADROMOUS	OTHER
BRIDGE 	SPANNING	EMPHATICALLY RECOMMENDED THE NATURAL STREAMBED AND BANKS MUST REMAIN INTACT. WHEN CROSSING THE STREAM DURING CONSTRUCTION IS ESSENTIAL, AN APPROVED FORDING TECHNIQUE OR TEMPORARY CULVERT IS REQUIRED	PREFERRED		
ARCH CULVERT 					
3-SIDED OR RC CULVERT 					
LOW FLOW "NOTCH" 		QUESTIONABLE ("NOTCH" MUST BE SIZED TO MEET EXISTING STREAM'S WIDTH AND DEPTH)	ACCEPTABLE GRADIENT CRITICAL		
TILTED CULVERTS 	NOW CONSIDERED OBSOLETE		ACCEPTABLE		
CENTER TILT 	QUESTIONABLE (DUE TO HIGH VELOCITY AND NO COVER)		ACCEPTABLE		
SELF-CLEANING BAFFLED CULVERT 	ACCEPTABLE (GRADIENT AND STABLE SUBSTRATE ARE CRITICAL)				
OVERSIZED / BELOW GRADE 	PREFERRED CULVERT CAN RESULT IN FORMATION OF A POOL OR NATURAL SUBSTRATE MAY BE REPLACED BY LOW FLOW CONFIGURATION. FUNCTIONAL IN GRADIENT UP TO 1% AND WHERE SUBSTRATES ARE STABLE (e.g. ROCK, COBBLE); MAY REQUIRE BAFFLE/WEIR PLATES TO HOLD SUBSTRATE.		ACCEPTABLE		
STANDARD CULVERT 	UNACCEPTABLE		ACCEPTABLE IN EXISTING: DEGRASSSED, CONCRETE, RIP-RAPPED, GABION STREAMS		

NOTE: (1) TWIN OR MULTICELL CULVERTS SHOULD HAVE THE LOW FLOW TREATMENT IN A SINGLE CELL.
 (2) NATURAL SUBSTRATE AND BAFFLES SHAPING A LOW FLOW CONFIGURATION CAN CREATE A "LOTIC ECO-CULVERT"

Source: New Jersey Division of Fish, Game and Wildlife

